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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,416	10/19/2001	Arthur R. Telkamp	268/001	3295
34313	7590	01/25/2005	EXAMINER	
ORRICK, HERRINGTON & SUTCLIFFE, LLP			PAK, SUNG H	
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SUITE 1600			PAPER NUMBER	
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DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/046,416	Applicant(s) TELKAMP ET AL.	
	Examiner Sung H. Pak	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-109 is/are pending in the application.
- 4a) Of the above claim(s) 79-82 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-78 and 83-109 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1104, 0502</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, claims 1-78, 83-109 in the reply filed on 11/05/2004 is acknowledged.

Information Disclosure Statement

Information disclosure statements filed 11/22/2004 and 5/02/2002 have been considered.

Drawings

The drawings were received on 1/20/2004. These drawings are acceptable.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-23, 41-43, 45-66, 72-78, 83-85, 87-104, 106-108 are rejected under 35 U.S.C. 102(b) as being anticipated by Labeye et al (US 5,612,815).

Labeye discloses an optical device and a method for making an optical device with all the limitations set forth in the claims, including: providing a substrate (Fig. 13); creating first ('170') and second ('172') movable platforms by a semiconductor process on the substrate; wherein the first and second movable platforms move relative to the substrate (Fig. 13); creating

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a stationary platform on the substrate by a semiconductor process (Fig. 13- platform on the right side of '172'); forming first and second light guiding structure on the first movable platform, and forming third and fourth light guiding structure on the second movable platform (Fig. 13); forming a fifth light guiding structure on the stationary platform (Fig. 13); wherein the position of the first movable platform determines whether the optical signal propagates through the first or second light guiding structure and the position of the second movable platform determines whether the optical signal propagates through the third or fourth light guiding structures, thereby creating an optical path from the input port to one of the N output ports (column 8 line 57- column 9 line 9); wherein the first and second movable platforms have a single degree of movement freedom relative to the substrate (Fig. 13); wherein the first and second movable platforms are adapted to move in a linear direction (Fig. 13- in x-direction); wherein the fabrication step comprises a step of creating a cavity in the substrate so that the first and second movable platforms are suspended at a distance from the substrate (Fig. 3A; column 5 lines 58-59; Fig. 1- '24'; column 3 line 22); a spring structure where one end of the spring support structure is mounted to the substrate and the other end of the spring structure is coupled to the first movable platform, the spring support structure permitting the first movable platform to move relative to the substrate (Fig. 13); wherein the light guiding structures includes waveguides (abstract); wherein when the positions of the first movable platform, the second movable platform and the stationary platform are changed relative to one another, the optical signal propagates along a different optical path from the input port to a different one of the N output ports (Fig. 13); wherein none of the optical path cross each other (Fig. 13); wherein the optical light guiding structures have large radius of curvature which gradually change the direction of

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the optical signal (Fig. 13- optical waveguides are curved so that the direction of the transmitted optical beams are also curved); wherein the fifth light guiding structure on the first stationary platform is positioned to receive the optical signal from the input port and propagates the optical signal to the first light guiding structure on the first movable platform, the first light guiding structure propagating the optical signal to the second light guiding structure on the second movable platform (Fig. 13, the platform on the left side of '170' may be considered as the 'stationary platform' and the light guide on this platform may be considered as the 'fifth' light guiding structure); wherein the fabrication step further includes forming a sixth light guiding structure on a second stationary platform, wherein the second light guiding structure on the second movable platform propagates the optical signal to the sixth light guiding structure (platform on the right side of '172' may be considered as the 'second stationary platform' and one of the light guides on this platform may be considered as the 'sixth light guiding structure'); an activation electrode coupled to the first movable platform, the actuator including an actuation electrode positioned to interact electrostatically with the activation electrode (column 5 lines 1-6); wherein the actuation electrode and activation electrodes are inter-digitized (Fig. 5a); wherein the second movable platform has seventh light guiding structure, the second movable platform moving between a first position, a second position and a third position, where the optical signal propagates through the third light guiding structure when the second movable platform is in the first position, the optical signal propagates through the fourth light guiding structure when the second movable platform is in the second position, and the optical signal propagates through the seventh light guiding structure when the second movable platform is in the third position (Fig. 13).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 68-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Labeye et al (US 5,612,815).

Labeye discloses an optical device and a method of making such a device with all the limitations set forth in the claims as discussed above, except it does not explicitly teach the use of N input ports (more than 1). However, the use of plurality of input ports is well known and common in optical switching device art. This feature is advantageous and desirable in the art because plurality of input ports allows the optical device to accept plurality of transmission optical signals simultaneously, thereby allowing for increased transmission bandwidth.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the Labeye device to have plurality of input ports.

Claims 4, 25-40, 44, 67, 86, 71, 109 are rejected under 35 U.S.C. 103(a) as being unpatentable over Labeye et al (US 5,612,815) in view of Valette et al (US 5,078,514).

Labeye discloses an optical device and a method of making such an optical device with all the limitations set forth in the claims as discussed above, except it does not explicitly teach the movable platforms that are adapted to rotate.

However, rotating movable platforms for optical switching is known in the art as taught by Valette (Fig. 14). The use of rotating platforms are considered advantageous and desirable in the art because they require less moving distance and thus less actuation voltage to carry out the switching motion, compared to linear actuation. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the Labeye device to have rotatable movable platforms.

Regarding claims 67 and 109, Labeye discloses an optical device and a method of making such an optical device with all the limitations set forth in the claims as discussed above, except it does not explicitly teach first and second movable platforms being arcs. Valette, on the other hand, explicitly teaches the use of arcuate platforms (Fig. 14). The use of arcuate platforms is advantageous and desirable because they allow for rotatable optical switching configuration which yield optical switches that require less moving distance and less actuation voltage. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the Labeye device to have arcuate platforms.

Claims 24 and 105 are rejected under 35 U.S.C. 103(a) as being unpatentable over Labeye et al (US 5,612,815) in view of Laor (US 6,320,993 B1).

Labeye discloses an optical device and a method of making such an optical device with all the limitations set forth in the claims as discussed above, except it does not explicitly teach the use of sensing electrodes for determining the position of the movable platform.

On the other hand, Laor explicitly discloses the use of a sensing electrode for determining the position of a movable platform (column 11 line 65- column 12 line 4). The use of a position sensing electrode is considered advantageous and desirable because it allows for accurate positioning of optical transmission components and thus minimizes coupling and transmission errors. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the Labeye device to have position sensing electrodes.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US005278692A, US006647168B2, US006694071B2, US006836583B2, US005848206, US005828800, US006219472B1 disclose optical switching devices with movable platforms.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

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The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sung H. Pak
Examiner
Art Unit 2874

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